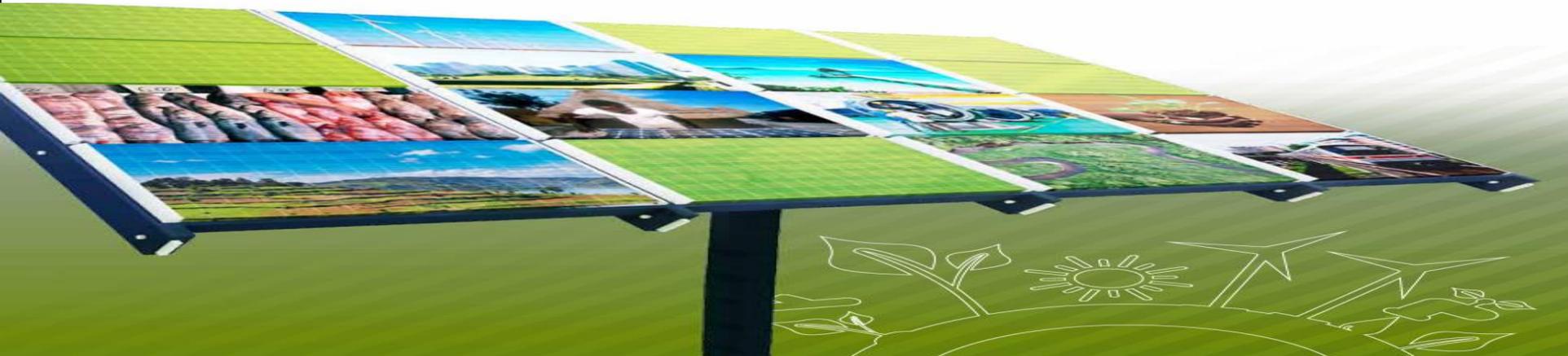




# Towards a **GREEN** economy



## **Health co-benefits of Green Policies in the Built Environment**

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**United Nation Environment Programme**

# Unsustainable development pathways deal to environmental and health risks:



FACT: A large percentage of the 30.5 million of death per year are attributable to environmental and lifestyle risks related to the built environment



# UNEP's **Green Economy**:

- increases human well-being,
- is socially inclusive,
- reduces environmental risks and ecological scarcities,
- is low carbon & resource efficient,
- is a pathway towards sustainable development.



# The built environment:

- all infrastructure, spaces and products created or modified by humans

## It includes:

- land-use planning
- buildings
- transportation systems
- water and sanitation



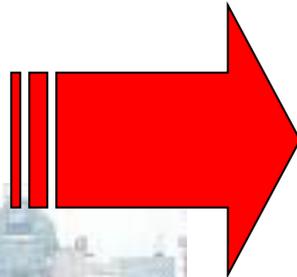
# Urban design and planning – health risks

Unsustainable urban planning can have an impact on Health:

(2010) 828 million of slum dwellers in developing countries

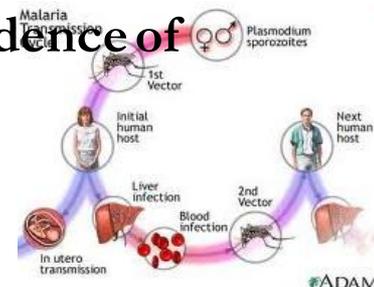
## Slums

Lack of durable housing, water supply and sanitation, public transport, energy supply, waste disposal



## Environmental-health impacts

- High HIV/AIDS
- Malaria
- Worm infections
- Depression
- High child mortality
- High incidence of diarrhoea



# Urban design and planning – **Green economy** policies



## **Green** policy instruments for **GREEN CITIES**

- Regulatory tools (e.g., environmental standards, land-use regulation)
- Information, awareness and civic engagement (e.g., demonstration projects)
- Incentives (e.g., taxes, PES, public services)
- Finance (e.g., micro-financing, taxes, cost recovery)
- Good governance in all levels
- Planning system (e.g., cross-sectoral strategies, effective slum policies)





# Green economy policies are effective for slum upgrading and prevention - II

## India

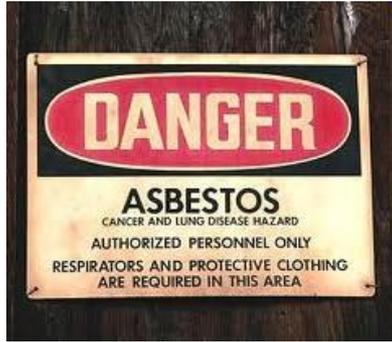
- building skills of poor people
- providing access to micro-credits
- providing basic services
- upgrading infrastructures in slums
- allowing low-cost housing
- subsidizing housing finance
- encouraging participation in decision making



**helped 59.7 million of these out of dire conditions since the year 2000**



# Buildings – health risks



Poor building design and construction are associated with a deterioration of Health



## Poor housing

- Inadequate fresh air ventilation and indoor pollution
- Cold, mould and dampness environments
- Unsafe buildings materials

Asthma, winter respiratory diseases, heart diseases, tuberculosis, chagas, dengue, malaria, cancer, asbestosis, COPD, etc.

## Some facts (2004):

Asbestosis - 107,000 deaths

## Indoor air pollution:

872,000 deaths in children - respiratory infection

1,057,000 deaths – COPD

36,000 deaths - lung cancer



# Buildings – Green economy policies



## Major opportunities:

Designing new construction & retrofitting existing buildings

## Green policy instruments and tools:

- Regulatory mechanisms (e.g., appliance standards, building codes)
- Economic instruments (e.g., efficiency certificate and credit schemes)
- Fiscal instruments (e.g., energy taxes, tax exemptions and reductions, grants, subsidized loans and rebates)
- Information and voluntary action (e.g., voluntary certification, awareness raising and education)



# Energy efficient buildings reduce the incidence of non-communicable diseases

## New Zealand:

Retrofitting houses with insulation (1350 houses, people with respiratory diseases)



- Half the odds of respiratory symptoms and day off school of children
- Less visits to general practitioners

# Renewable energy technologies in buildings reduce prevalence of disease

India: substitution of kerosene lamps by ultra-low-energy LED lanterns recharged by solar panels (160,000 people, 600 villages)



- Reduction of cough, eye rashes, heavy headaches
- Avoided accidents and injuries due to toppling of kerosene lamps



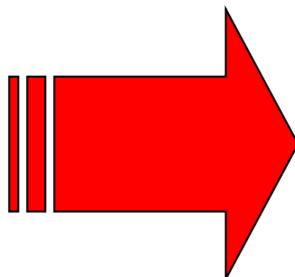
# Transport – health risks

Air transport-related pollution poses serious threats to health

1.3 million people die each year as result of small particles generated by the transport sector

## Health impacts

**Emissions:** Sulphur oxides, Nitrogen oxides, Carbon Monoxide, Hydro Carbon, Volatile Organic Compounds, Lead Particles, Particles Matter, lead



- Cardiovascular
- Respiratory disease
- Cancer
- Adverse reproductive outcomes
- Liver and kidney damage
- Convulsions
- Impaired exercise performance



# Transport – **Green economy** policies



## **Green policy instruments and tools:**

- Urban planning (e.g., appropriate city design, infrastructure for public transport, cycling and walking)
- Regulatory (e.g., traffic restrictions, labeling of new cars, eco-driving)
- Information (e.g., increase awareness of real costs of travel, mobility management)
- Economic instruments (e.g., national subsidies for low carbon transport, grants, loans, taxes)



# Green transport improves population health and reduce road traffic injuries.

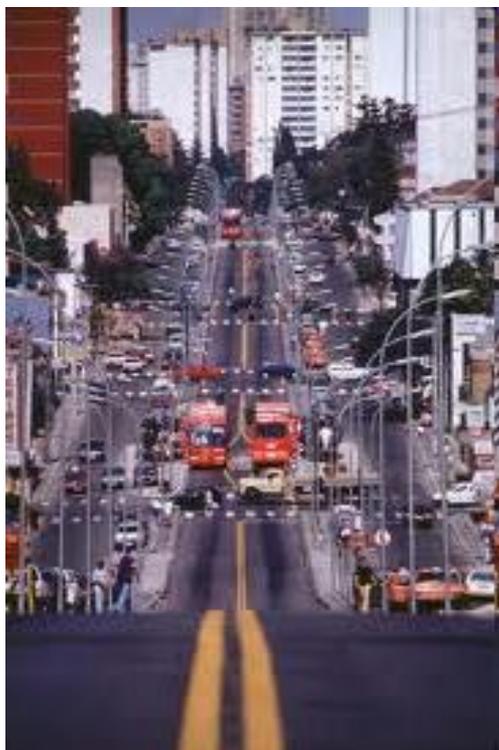


## Urban planning:

- Bus Rapid Transit System in Curitiba, Brazil: high air quality, 45% of all trips
- Modal shift from car to bicycle in Copenhagen and Shanghai: lower incidence of premature mortality (30 %) among groups who commute to work by bicycle

## Regulatory:

- Worldwide removal of lead from vehicle fuels: more than 1 million avoided premature deaths and has saved US\$2.4 trillion
- In the US, Clean Air Act of 1970 has reduced the proportion of cancer and cardiovascular diseases



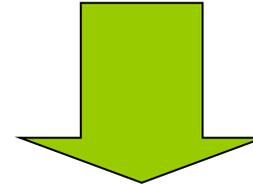
# Improved rural sanitation in Thailand

## Green policies:

- removing harmful subsidies for hardware sanitation
- revolving loan program for sanitation improvements
- regulation: new homes have a sanitary toilet
- public funding: US\$ 2-6 million (1990-1998)
- all 5-years development plans include sanitation programmes
- government assistance to train private sector in building and marketing appropriate sanitation technologies
- Special provisions for the poorest



**1960:** less than 1% had access to basic sanitation



**2005:** 99.9% of the Thailand's rural population have a sanitary toilet



# Final considerations – Key messages

- A green economy reduces environmental risks which affect human health
- Green investments in the built environment (i.e., urban-land management, buildings, transport and water supply and sanitation) generate health co-benefits
- A green economy takes into account and proposes tools and instruments to address the health externalities due to environmental risks
- A green economy pays special attention to the poorest and contribute to improve their human well-being, including Health.



# Thank You



Towards a

**GREEN** economy

